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SUSTAIN WATER, SANITATION AND HYGIENE SERVICES****Customer perceptions and implementation of pro-poor  
safe water interventions in Uganda's urban areas***I. K. Tumwebaze & S. A. Ayugi (Uganda)***PAPER 2791**

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*This paper presents findings from the study on water user customer perceptions and the implantation of pro-poor safe water interventions in Uganda's urban areas. It was a cross-sectional study conducted in six urban towns. A total of 341 household respondents, mostly buying water from public water points participated. Most water consumers from public water points were satisfied with the sources and quality of water. Some perceived the water as safe to drink without first boiling it. However, some consumers believed their water was contaminated and others it being hard. Most water customers never participated in establishment of the sources and neither were they consulted in setting water tariffs. With regard to the pro-poor water and sanitation strategy, key informant respondents such as the private water operators were unaware of its existence while those who were knowledgeable were blunt about its content due to inadequate dissemination and clearly defined concepts. This study recommends that to any pro-poor strategies be well disseminated to all service providers and have clear implementation frameworks to track performance. In addition, of all service users at all stages of service provision, inclusive of setting tariffs to avoid exploitation from vendors at the public water points is fundamental.*

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**Introduction**

The United Nations General Assembly, through a resolution (64/292) in 2010 declared access to safe drinking water and sanitation as a human right and essential to the realization of all human rights (UN, 2010). While the Millennium Development Goal (MDG) target on halving the proportion of the population without access to safe drinking water was achieved, about 663 million people still lack access to improved water sources while 2.4 billion lack access to improved sanitation facilities (UN, 2015 & 2016). In Uganda, the provision of services to the poor is one of the core responsibilities of the Ministry of Water and Environment. This is envisaged in the 2006 pro-poor strategy for the water and sanitation sector (MWLE, 2006). Whereas the strategy is focused to rural as well as small and large towns' water supply and sanitation, this paper shares findings on customer perceptions and lessons from pro-poor safe water interventions in urban areas (small and large towns).

**Methodology**

The pro-poor strategy for small and large towns addresses both the immediate needs of the poor as well as the long term economic and social benefits that arise from improved prospects of economic growth in urban centres reliably served with water and sanitation services. The strategies with an immediate pro-poor impact for water services include: enhancing access by densifying network and expanding to unserved areas, directly serve the poor by establishing public water points, continuously updating pro-poor tariff, subsidizing yard connections serving as authorized public water points, providing subsidy to operation and maintenance and to continuously monitor water quality. On the other hand, the strategies with a longer term economic benefit include enhancing access by expanding the network to rural parts of a gazetted water supply area and subsidizing yard and household connections.

This was a cross-sectional study conducted in six towns of four regions. Two of the towns are classified as large towns (Kampala – central region and Lira municipality – Northern region) with piped water services are

provided by national water and sewerage corporation (NWSC). Four are classified as small towns (Lira – under Agweng Town Board, Nakasongola Town Council – central region, Buyende – Eastern region and Isingiro’s Rugaaga Town Council – South-western region) with water services are provided by private water operators (PWO) or Town Water Boards (TWB). The study was conducted between July – September 2016.

A total of 341 household respondents (in this study referred to as customers from pro-poor water points) were interviewed using a semi-structured household questionnaire. In addition, 19 key informant respondents – service providers were also interviewed on pro-poor services delivered and their awareness of the pro-poor water and sanitation strategy. Purposive sampling was used to ensure all regions were represented in the survey as well as selection of key informant respondents. The key informant respondents were from the different water service facilities inclusive of the Ministry of Water and Environment’s Water and Sanitation Development Facilities in the studied regions. On the other hand, random sampling was used for water customers to assess their perceptions on the water consumed. The number of respondents interviewed in each town ranged between 50-66 water customers. Systematic sampling was used in areas where households were close to each other to ensure a wide coverage.

Household data was collected by a team of trained research assistants and the questionnaire was pretested and revised prior to actual data collection. Research assistants had to be conversant with the most commonly spoken languages in the studied areas. Data from key informant respondents was collected by the principal investigator. Data collected was reviewed on the daily basis for complete-and-correctness. Cleaned data was entered and analyzed using SPSS version 23.

## Results and discussion

A total of 341 water customers participated in this study. These were from the towns of Irundu (Buyende district), Rugaaga (Isingiro), Kampala’s informal settlement areas (Kampala), Lira municipality (Lira), Agweng (Lira) and Nakasongola town council (Nakasongola). Over half of the participants were female, falling between 20 to 39 years of age. The majority of the participants earn a living from non-formal employment, with their most estimated monthly income between Uganda Shillings 101,000 (approximately USD 28 – 42), and the mean number of people in a family ranging between five to seven people (See Table 1 for more socio-demographic characteristics).

Districts	Buyende	Isingiro	Kampala	Lira	Nakasongola
Variables	Frequency (%), N = 60	Frequency (%), N = 50	Frequency (%), N = 60	Frequency (%), N = 105	Frequency (%), N = 66
<b>Age</b>					
Below 20 years		1 (2.0)	2 (3.3)	11 (10.5)	4 (6.2)
20-29	16 (27.1)	13 (26.0)	25 (41.7)	37 (35.2)	27 (41.5)
30-39	23 (39.0)	14 (28.0)	19 (31.7)	24 (22.9)	21 (32.3)
40-49	9 (15.3)	14 (28.0)	9 (15.0)	19 (18.1)	7 (10.8)
50+	11 (18.6)	8 (16.0)	5 (8.3)	14 (13.3)	6 (9.2)
Total	59	50	60	105	65
<b>Gender</b>					
Male	28 (46.7)	20 (40.0)	12 (20.0)	33 (31.4)	15 (22.7)
Female	32 (53.3)	30 (60.0)	48 (80.0)	72 (68.6)	51 (77.3)
Total	60	50	60	105	66

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<b>Marital status</b>					
Not married	8 (13.3)	10 (20.0)	20 (33.3)	25 (24.0)	21 (32.3)
Married	52 (86.7)	40 (80.0)	40 (66.7)	79 (76.0)	44 (67.7)
Total	60	50	60	104	65
<b>Education</b>					
None	10 (17.5)	4 (8.0)	3 (5.0)	7 (6.7)	9 (13.8)
Primary	29 (50.9)	23 (46.0)	12 (20.0)	41 (39.4)	16 (24.6)
Secondary	15 (26.3)	21 (42.0)	34 (56.7)	36 (34.6)	31 (47.7)
Tertiary	3 (5.3)	2 (4.0)	11 (18.3)	20 (19.2)	9 (13.8)
Total	57	50	60	104	65
<b>Employment</b>					
Formal employment	3 (5.4)	2 (5.6)	7 (15.9)	11 (14.7)	5 (11.1)
Non formal employment	53 (94.6)	34 (94.4)	37 (84.1)	64 (85.3)	40 (88.9)
Total	56	36	44	75	45
<b>Monthly estimated income</b>					
<51,000 (\$14)	8 (18.6)	4 (11.8)	2 (4.7)	11 (15.1)	5 (15.6)
51,000-100,000				1 (1.4)	
101,000-150,000	23 (53.5)	16 (47.1)	21 (48.8)	32 (43.8)	14 (43.8)
151,000-200,000	8 (18.6)	3 (8.8)	10 (23.3)	11 (15.1)	6 (18.8)
>200,000 (\$56)	4 (9.3)	11 (32.4)	10 (23.3)	18 (24.7)	7 (21.9)
Total	43	34	43		32
<b>Household head</b>					
No	22 (37.3)	19 (38.0)	32 (53.3)	52 (49.5)	32 (48.5)
Yes	37 (62.7)	31 (62.0)	28 (46.7)	53 (50.5)	34 (51.5)
Total	59	50	60	105	66
<b>Household People (mean, range)</b>	mean=7.45 (min =2, max=25)	mean=6.34 (min =2, max=16)	mean=4.63 (min =1, max=20)	mean=5.58 (min =1, max=21)	mean=4.89 (min =1, max=15)

Notes: % = percentages, min = minimum and max = maximum, N = total number of respondents

The pro-poor water source connections reported accessible to the studied population, as stated in the order of dominance included yard taps (n=254 responses), water kiosks (167), household connections (98), public stand pipes (76), and pre-paid meters (51). Over seventy percent (245/338) of the interviewed water customers revealed that water was accessible on the mentioned facilities all day. Yard connections involve provision of piped water accessible to the public in privately owned homes who in turn sell it to consumers. The yard connections were the most commercial in small towns. Water kiosks were reported in all the studied towns

while pre-paid meters were only reported in Kampala. The cost of water per 20 litre jerry can ranged between Uganda Shillings 100 to 500. However, during water shortages, it was reported to cost as much as Uganda Shillings 1,500 if bought from water vendors. The lack of awareness on how much water should cost exposes buyers to exploitation by middlemen hiking prices. It is important that government entities such as Uganda's Ministry of Water and Environment play an elaborate role in ensuring the poor are not always charged more than the household tariff. As indicated in most studies, access to piped water among populations in low income areas in most developing countries' urban towns has been on the increase (Kulabako et. al, 2010; Tumwebaze & Luithi, 2013; MoWE, 2015).

<b>Table 2. Perceptions with regard to accessed water sources</b>					
<b>Variables</b>	<b>General</b>	<b>Irundu</b>	<b>Rugaaga</b>	<b>Kampala</b>	<b>Lira Municipality</b>
	<b>Freq (%), N= 341</b>	<b>Freq (%), N= 60</b>	<b>Freq (%), N= 50</b>	<b>Freq (%), N= 60</b>	<b>Freq (%), N= 53</b>
<b>Never lacked water since source installed</b>					
Disagree	147 (43.3)	14 (23.3)	28 (57.1)	24 (40.0)	28 (52.8)
Neutral	9 (2.7)		6 (12.2)		1 (1.9)
Agree	183 (54.0)	47 (76.7)	15 (30.7)	36 (60.0)	24 (45.3)
<b>Satisfied with water source</b>					
Disagree	54 (15.8)	4 (6.7)	20 (40.0)	8 (13.3)	2 (3.8)
Neutral	4 (1.2)		1 (2.0)	1 (1.7)	
Agree	282 (83.0)	56 (93.3)	29 (58.0)	51 (85.0)	51 (96.2)
<b>Satisfied with water source management</b>					
Disagree	79 (23.2)	10 (16.7)	4 (8.0)	10 (16.7)	13 (24.5)
Neutral	14 (4.1)	2 (3.3)	2 (4.0)		
Agree	248 (72.7)	48 (80.0)	44 (88.0)	50 (83.3)	40 (75.5)
<b>Cost of water affordable</b>					
Disagree	75 (22.0)	13 (21.6)	23 (46.0)	8 (13.4)	11 (20.8)
Neutral	4 (1.2)		2 (4.0)		1 (1.9)
Agree	261 (76.8)	47 (78.4)	25 (50.0)	52 (86.6)	42 (77.3)
<b>Willing and able to pay</b>					
Disagree	25 (8.5)	1 (2.1)	18 (36.7)	1 (1.9)	3 (6.4)
Neutral	3 (1.0)		3 (6.1)		
Agree	268 (90.5)	47 (97.9)	28 (57.2)	52 (98.1)	44 (93.6)
<b>Participated in planning for water source</b>					
Disagree	228 (67.2)	29 (48.3)	36 (72.0)	49 (81.6)	37 (69.4)
Neutral	2 (0.6)		1 (2.0)	1 (1.7)	

Agree	109 (32.2)	31 (51.7)	13 (26.0)	10 (16.7)	16 (30.6)
<b>Consulted in establishment of water tariff</b>					
Disagree	253 (75.3)	28 (46.7)	39 (79.6)	51 (85.0)	42 (79.2)
Neutral	5 (1.5)	1 (1.7)	1 (2.0)	2 (3.3)	1 (1.9)
Agree	78 (23.2)	31 (51.6)	9 (18.4)	7 (11.7)	10 (18.9)

Notes: Freq = frequency, % = percentage, N = total number of respondents

Table 2 shows that other than most water user customers never being consulted in establishment of water tariffs or participated in planning for the sources, they were generally satisfied with the water sources and their management. The majority of the customers also reported that the cost of water per 20 litre jerry can or monthly payment was affordable and expressed great willingness to pay for the water. However, slightly over half of the water customers reported to have never lacked water since the water sources were installed. Other than the towns of Irundu, Kampala and Agweng, the rest reported to have ever lacked water.

Overall, most water customers were satisfied with the quality of water from the piped water sources (See Table 3). It was only in Rugaaga where over half (56%) of the studied population expressed dissatisfaction with their water starting hardness as the cause for dissatisfaction.

<b>Table 3. Perceptions with regard to water quality</b>							
<b>Towns</b>	<b>General</b>	<b>Irundu</b>	<b>Rugaaga</b>	<b>Kampala</b>	<b>Lira Municipality</b>	<b>Agweng</b>	<b>Nakasongola Town Council</b>
<b>Variables</b>	<b>Freq (%), N= 341</b>	<b>Freq (%), N= 60</b>	<b>Freq (%), N= 50</b>	<b>Freq (%), N= 60</b>	<b>Freq (%), N= 53</b>	<b>Freq (%), N= 52</b>	<b>Freq (%), N= 66</b>
<b>Overall satisfied with water quality</b>							
Disagree	46 (13.6)		28 (56.0)	5 (8.4)	2 (3.8)	1 (1.9)	10 (15.4)
Neutral	7 (2.1)	1 (1.7)	4 (8.0)				2 (3.1)
Agree	287 (84.3)	59 (98.3)	18 (36.0)	55 (91.6)	51 (96.2)	51 (98.1)	53 (88.5)
<b>Water contaminated</b>							
Disagree	187 (54.9)	22 (36.7)	29 (58)	40 (66.7)	32 (60.3)	40 (77.0)	24 (36.3)
Neutral	13 (3.8)	1 (1.7)	5 (10.0)	2 (3.3)	3 (5.7)	2 (3.8)	
Agree	141 (41.3)	37 (61.6)	16 (32.2)	18 (30.0)	18 (34.0)	10 (19.2)	42 (63.7)
<b>Water is safe to drink without boiling</b>							
Disagree	161 (47.3)	9 (15.0)	35 (70.0)	50 (83.4)	14 (26.4)	2 (3.8)	51 (78.6)
Neutral	4 (1.2)	1 (1.7)		3 (5.0)			
Agree	175 (51.5)	50 (83.3)	15 (30.0)	7 (11.6)	39 (73.6)	50 (96.2)	14 (21.4)
<b>Water is colourless</b>							
Disagree	26 (7.7)	2 (3.4)	9 (18.8)	2 (3.3)	3 (5.7)	1 (1.9)	9 (13.8)
Neutral	8 (2.4)		5 (10.0)	1 (1.7)			2 (3.1)
Agree	308 (89.9)	58 (96.6)	36 (72.2)	57 (95.0)	50 (94.3)	51 (98.1)	54 (83.1)

Water not smelly							
Disagree	38 (11.2)		9 (18.4)	6 (10.0)	5 (9.4)	2 (3.8)	16 (24.2)
Neutral	4 (1.2)		2 (4.1)		2 (3.8)		
Agree	297 (87.6)	59 (100)	38 (77.5)	54 (90.0)	46 (86.8)	50 (96.2)	50 (75.8)

As shown in Table 3, most water customers in Irundu and Nakasongola perceived their water as contaminated. Key informant respondents (Private Water Operators) in this towns also revealed that they take time to do water quality testing and chlorination of the water due to lack of equipment, expertise and the high associated costs. They expressed reliance on the Umbrella Organization – association for all private water operators. These they added are never timely when needed, leading them (private operators) to be mistrusted by customers. The table also shows that most a number of water customers, such as in the towns of Irundu, Lira municipality and Agweng believed the water got from the piped sources was safe to drink without first boiling it.

Table 4. Daily quantity of water used in customer homes									
Towns	Use 10 or more 20 jerry cans		Use 7 - 9 jerry cans		Use 4 - 6 Jerry cans		Use < 4 jerry cans		Total
	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	
Rugaaga	48	2	45	5	37	13	14	36	50
	96.0%	4.0%	90.0%	10.0%	74.0%	26.0%	28.0%	<b>72.0%</b>	100.0%
Irundu	52	8	53	7	38	22	29	31	60
	86.7%	13.3%	88.3%	11.7%	63.3%	36.7%	48.3%	<b>51.7%</b>	100.0%
Lira Municipality	43	10	45	8	31	22	32	21	53
	81.1%	18.9%	84.9%	15.1%	58.5%	<b>41.5%</b>	60.4%	39.6%	100.0%
Agweng	46	6	46	6	25	26	35	17	52
	88.5%	11.5%	88.5%	11.5%	49.0%	<b>51.0%</b>	67.3%	32.7%	100.0%
Kampala	56	4	54	6	40	20	29	31	60
	93.3%	6.7%	90.0%	10.0%	66.7%	33.3%	48.3%	<b>51.7%</b>	100.0%
Nakasongola Town Council	58	8	57	9	33	33	21	45	66
	87.9%	12.1%	86.4%	13.6%	50.0%	50.0%	31.8%	<b>68.2%</b>	100.0%

As illustrated in Table 4 (bold figures), most water customers interviewed use less than four jerry cans of 20 litres per day. It was only in Agweng where customers reported using between 4 – 6 jerry cans of water. The reason for this could be the existence of alternative sources such as protected springs that were observed in the area.

Lastly, all private water operators who served as key informant respondents, inclusive of some from government institutions were unaware of the existence of the pro-poor water and sanitation strategy that guides delivery of pro-poor services. While key informant respondents from the Ministry of Water and Environment's Water and Sanitation Development Facilities located in the studied regions, inclusive of respondents from National Water and Sewerage Corporation (NWSC) knew of the existence of the strategy, they maintained it lacked a clear dissemination and implementation strategy. Another limitation mentioned was the lack of clear definitions of poor referred targeted by the strategy. Nevertheless, apart from the private

operators that reported delivery of water services based on customers' ability to pay for the services, key informant respondents from NWSC and the Water and Sanitation Development Facilities maintained that their services are also highly subsidized to the needs of needs of the poor.

## Conclusion

This study has revealed that most water customers that depend on piped water from public water points were satisfied with the sources and the quality of water. The findings also revealed that some sources were perceived to be contaminated or experienced water shortages. In regard to the implementation of the pro-poor interventions, the pro-poor strategy for the water and sanitation sector needs to be revisited for review and adequately disseminated to all service providers. The inclusion of water customers in planning for the water sources and establishment of tariffs is fundamental to sustainability of services and limiting exploitation from some service providers.

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